

Claims

We claim:

1. A roller cradle for use in a modular conveying assembly, said cradle comprising:
a first part including a first hinge member and a first shaft extending from said first hinge member, said first shaft having a hollow portion opening at a first shaft distal end;
a second part including a second hinge member and a second shaft extending from
5 said second hinge member, said second shaft having a second shaft distal end received in said hollow portion of said first shaft through said first shaft distal end.
2. The roller cradle as in claim 1, in which a roller is rotatably supported by said first shaft.
3. The roller cradle as in claim 1, in which one of said first and second shafts includes an axial slot extending from said first shaft distal end.
4. The roller cradle as in claim 3, in which said one of said first and second shafts includes at least one circumferential slot intersecting said axial slot, and the other of said first and second shafts includes at least one radially extending key received in said at least one circumferential slot.

5. The roller cradle as in claim 1, in which one of said first and second shafts includes at least one engaging structure, and the other of said first and second shafts includes at least one receiving structure for receiving said at least one engaging structure to axially fix said first and second shafts relative to each other.
6. The roller cradle as in claim 5, in which said at least one engaging structure is selected from a group consisting of a lip and a barb.
7. The roller cradle as in claim 5, in which said receiving structure is selected from a group consisting of a groove and an aperture.
8. The roller cradle as in claim 1, in which said first and second shafts include threads that threadably engage to fix said shafts relative to each other.
9. The roller cradle as in claim 1, in which said shafts are bonded together.
10. The roller cradler as in claim 1, in which at least one of said shafts is cylindrical.

11. A modular conveying assembly for conveying an object, said assembly comprising:

a plurality of chain modules assembled in an edge to edge relation to form a continuous belt, at least one of said modules having side edges joined by leading and trailing edges, and at least one of said side edges including a concave portion defined by a concave surface facing a side edge of an adjacent chain module;

at least one hinge pin joining said at least one of said modules and said adjacent chain module;

at least one cradle interposed between said at least one of said modules and said adjacent chain module; and

a roller supported by said cradle and extending into said concave portion.

12. The modular conveying assembly as in claim 11, in which said cradle includes:

a first part including a first hinge member and a first shaft extending from said first hinge member, said first shaft having a hollow portion opening at a first shaft distal end;

a second part including a second hinge member and a second shaft extending from said second hinge member, said second shaft having a second shaft distal end received in said hollow portion of said first shaft through said first shaft distal end.

13. The modular conveying assembly as in claim 12, in which said roller is rotatably supported by said first shaft.

14. The modular conveying assembly as in claim 12, in which one of said first and second shafts includes an axial slot extending from said first shaft distal end.

15. The modular conveying assembly as in claim 14, in which said one of said first and second shafts includes at least one circumferential slot intersecting said axial slot, and the other of said first and second shafts includes at least one radially extending key received in said at least one circumferential slot.

16. The modular conveying assembly as in claim 12, in which one of said first and second shafts includes at least one engaging structure, and the other of said first and second shafts includes at least one receiving structure for receiving said at least one engaging structure to axially fix said first and second shafts relative to each other.

17. The modular conveying assembly as in claim 16, in which said at least one engaging structure is selected from a group consisting of a lip and a barb.

18. The modular conveying assembly as in claim 16, in which said receiving structure is selected from a group consisting of a groove and an aperture.

19. The modular conveying assembly as in claim 12, in which said first and second shafts include threads that threadably engage to fix said shafts relative to each other.

20. The modular conveying assembly as in claim 12, in which said shafts are bonded together.

21. The modular conveying assembly as in claim 12, in which at least one of said shafts is cylindrical.

22. The modular conveying assembly as in claim 11, in which said at least one of said modules includes a top surface extending over a portion of said roller.

23. A modular conveying assembly for conveying an object, said assembly comprising:

a plurality of chain modules assembled in an edge to edge relation to form a continuous belt, at least one of said modules having side edges joined by leading and trailing edges, and at least one of said side edges including a concave portion defined by a concave surface facing a side edge of an adjacent chain module;

at least one hinge pin joining said at least one of said modules and said adjacent chain module;

at least one cradle interposed between said at least one of said modules and said adjacent chain module, said cradle including a first part and a second part, said first part including a first hinge member and a first shaft extending from said first hinge member, said first shaft having a hollow portion opening at a first shaft distal end, and said second part including a second hinge member and a second shaft extending from said second hinge member, said second shaft having a second shaft distal end received in said hollow portion of said first shaft through said first shaft distal end; and

a roller supported by said cradle and extending into said concave portion.

24. The modular conveying assembly as in claim 23, in which said roller is rotatably supported by said first shaft.

25. The modular conveying assembly as in claim 23, in which said first shaft includes an axial slot extending from said first shaft distal end.

26. The modular conveying assembly as in claim 25, in which said first shaft includes at least one circumferential slot intersecting said axial slot, and said second shaft includes at least one radially extending key received in said at least one circumferential slot.

27. The modular conveying assembly as in claim 23, in which one of said first and second shafts includes at least one engaging structure, and the other of said first and second shafts includes at least one receiving structure for receiving said at least one engaging structure to axially fix said first and second shafts relative to each other.

28. The modular conveying assembly as in claim 27, in which said at least one engaging structure is selected from a group consisting of a lip and a barb.

29. The modular conveying assembly as in claim 27, in which said receiving structure is selected from a group consisting of a groove and an aperture.

30. The modular conveying assembly as in claim 23, in which said first and second shafts include threads that threadably engage to fix said shafts relative to each other.

31. The modular conveying assembly as in claim 23, in which said shafts are bonded together.

32. The modular conveying assembly as in claim 23, in which at least one of said shafts is cylindrical.

33. The modular conveying assembly as in claim 23, in which said at least one of said modules includes a top surface extending over a portion of said roller.